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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/817,869	03/26/2001	Xuemin Wang	30509	8088

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EXAMINER
MEHTA, ASHWIN D

ART UNIT	PAPER NUMBER
1638	12

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/817,869	WANG ET AL.	
	Examiner	Art Unit	
	Ashwin Mehta	1638	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 March 2001* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-59* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-59* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *26 March 2001* is/are: a)☐ accepted or b)☒ objected to by the Examiner. See item 1 on page 2.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *2, 3* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Drawings

1. The instant application contains a petition filed under 37 CFR 1.84(b) to accept color photographs. However, the petition was not accompanied by an amendment to the first paragraph of the brief description of drawings section in the specification, as required by 37 CFR 1.84(b). The paragraph should read:

> The patent or application file contains at least one drawing executed in color. Copies of this patent or patent application publication with color drawing(s) will be provided by the U.S. Patent and Trademark Office upon request and payment of the necessary fee.

Upon amendment of the specification, the petition will be approved and the conditions for accepting color drawings will be satisfied.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. Claims 1-53, 57, and 58 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1: The recitation "baseline level" renders the claim indefinite. It is not clear what level is being referred to by "baseline level." PLD enzyme expression varies at different points in a plant life cycle. For example, the expression is increased during senescence. It is not clear which level of expression is considered to be the "baseline" level in the claimed method.

Further in claim 1: the recitation "altered stomatal closure characteristics" in line 7 also renders the claim indefinite. It is not clear what kinds of alterations are encompassed by the claim. The metes and bounds of the claim are not clear.

Further in claim 1: the recitation "and the relationship between the stomatal closure characteristics and the altered level of PLD enzyme expression, as compared with said baseline level" in lines 7-10 also renders the claim indefinite. A term(s) appears to be missing between "and the" and "relationship." It is also not clear what type of relationship is intended. The recitation only indicates that it is to be compared to the baseline level.

In claims 2, 3, 15, 16, 28, 29, 41, and 42: the recitation "The method of claim 1, further comprising the step of introducing" in line 1 of claims 2 and 3 renders them indefinite. Claim 1 indicates that expression or PLD enzyme is to be changed. The limitations of claims 2 and 3 are intended to increase or decrease the level of expression of a PLD enzyme. It is then not clear if the steps in claims 2 and 3 are actually supposed to be in addition to the step in claim 1 which results in the change in baseline level of expression of PLD enzyme. Claims 15, 16, 28, 29, 41, and 42 are indefinite for the same reason.

Further in claims 3, 16, 29, and 42: the recitation "a promoter and PLD coding sequences" in lines 2-3 renders the claims indefinite. The plural term "sequences" makes it unclear if the recitation indicates that more than one PLD coding sequence is supposed to be present.

In claims 4, 17, 20, 30, 33, 43, 46, 57, and 58: the recitation "sequence similarity to SEQ ID NO: 1 (or 2)" renders the claims indefinite. SEQ ID NOs: 1 and 2 are nucleotide sequences. It is not clear what is meant by a nucleotide sequence having sequence similarity to another

sequence. The definition for "sequence similarity" in the paragraph bridging pages 13-14 indicates that to obtain a polynucleotide having 95% sequence similarity with a reference sequence, 95% of nucleotides in the reference sequence must match or comprise a conservative substitution with another nucleotide. However, it is not clear what a conservative substitution for a nucleotide base is. What is a conservative substitution for guanine, for example? The definition does not clearly encompass genetic code degeneracy, as this pertains to codons, not individual nucleotides.

In claims 4, 5, 7, 8, 17, 18, 20, 21, 30, 31, 33, 34, 43, 44, 46, 47, 57, 58: the recitation "at least about" renders the claims indefinite. It is not clear what percent of sequence similarity or identity is encompassed by the claims. For example, is 50% at least about 60%?

In claims 6, 19, 32, 45: the recitation "35S promoter" renders the claim indefinite. It is not clear what promoter "35S" is referring to.

In claim 14: the recitation "testing water consumption levels of said plant in order to determine if said genome alteration will permit plant growth" in lines 6-7renders the claim indefinite. The definition for "unsuitable water and growth conditions" on page 14 indicates such conditions are those in which untransformed plants cannot grow. Therefore, the growth of a transformed plant itself is the determinant of whether such conditions will sustain plant growth. It is not clear what "testing water consumption levels" has to do in the determination of whether the "genome alteration will permit plant growth". If the plant doesn't grow, there is no water consumption level to test.

In claim 27: it is not exactly clear what is meant by "baseline".

In claim 40: the recitation "altering" in line 1 renders the claim indefinite. It is not exactly clear what is encompassed by altering watering consumption. The metes and bounds of the claim are not clear.

Further in claim 40: the claim is indefinite because the last step of the claim is inconsistent with the preamble. Line 1 of the claim indicates that the method is for altering water consumption. However the only recited step indicates that the level of PLD enzyme expression is manipulated.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1-26, 28-34, and 40-59 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The claims are broadly drawn to a method of creating a transformed plant comprising the steps of recombinantly altering the genome of a plant in any way in an effort to change the baseline level of expression of any PLD enzyme; or a method of growing a transformed plant in a location having unsuitable water and growth conditions prior to transformation, comprising recombinantly altering the genome of a plant in any way in an effort to change the baseline level of expression of any PLD enzyme; or a method of growing a transformed plant having any type

of modified stomatal closure response to water availability, comprising recombinantly altering the genome of a plant in any manner, further comprising introducing an antisense gene of any PLD into said genome or an insert comprising a promoter and any PLD coding sequences; or a method of altering water consumption by a plant comprising manipulating the level of PLD enzyme expression in any manner; or a transformed plant having an altered level of expression of any PLD, altered in any manner.

The specification indicates that SEQ ID NO: 1 is the antisense sequence of the coding sequence for an Arabidopsis phospholipase Dα (PLDα) enzyme (page 3, lines 6-8), and that SEQ ID NO: 2 is the coding sequence for a PLDα from Ricinis communis (page 9, lines 9-10; sequence listing). However, the specification does not teach any sequences that have 60% sequence similarity or 50% identity to SEQ ID NO: 1, or which have 60% or 70% sequence similarity or 50% sequence identity to SEQ ID NO: 2 which also retain their functional activities. The specification does not describe regions of functional importance, or sequences of SEQ ID NOs: 1 or 2 that may be changed without altering activity. See Fiers 25 USPQ 2d (CAFC 1993) at 1606, which states that "[a]n adequate written description of a DNA requires more than a mere statement that it is part of the invention and reference to a potential method for isolating it; what is required is a description of the DNA itself". Given the breadth of the claims encompassing nucleotide sequences having 60% sequence similarity or 50% identity to SEQ ID NO: 1, or which have 60% or 70% sequence similarity or 50% sequence identity to SEQ ID NO: 2, and lack of guidance as discussed above, the specification fails to provide an adequate written description of the multitude of nucleotide sequences encompassed by the claims.

3. Claims 1-59 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for the claimed methods and plant wherein PLDα level is increased by transgenic expression of SEQ ID NO: 1 or 2, or wherein PLDα levels are lowered by antisense expression of SEQ ID NO: 1 or 2 in transgenic plants, does not reasonably provide enablement for the claimed methods and plants by changing the level of expression of other PLDs, or any other method of changing the expression level of PLDα, or any other method of altering the genome to change the level of stomatal closure response. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention commensurate in scope with these claims.

The claims are broadly drawn to a method of creating a transformed plant comprising the steps of recombinantly altering the genome of a plant in any way in an effort to change the baseline level of expression of any PLD enzyme; or a method of growing a transformed plant in a location having unsuitable water and growth conditions prior to transformation, comprising recombinantly altering the genome of a plant in any way in an effort to change the baseline level of expression of any PLD enzyme; or a method of growing a transformed plant having any type of modified stomatal closure response to water availability, comprising recombinantly altering the genome of a plant in any manner; or a method of altering water consumption by a plant comprising manipulating the level of PLD enzyme expression in any manner; or a transformed plant having an altered level of expression of any PLD, altered in any manner.

The specification teaches there are three distinct isoforms of phospholipase D (PLD) in plants: PLDα, PLDβ, and PLDγ, and that PLDα is expressed in guard cells (page 3, lines 4-8). Transgenic Arabidopsis plants expressing the Arabidopsis PLDα coding sequence (SEQ ID NO:

1) in antisense orientation were prepared, in which PLDα expression nearly completely suppressed (page 4, lines 21-34). Stomatal closure in wild type and the "antisense" transgenic plants was determined by measuring diffusion resistance. Under normal growing conditions, the wild type and PLDα antisense plants grew normally. Incubation of wild type leaves in abscisic acid (ABA) induced stomatal closure, as indicated by a 2-fold increase in diffusion resistance. The same ABA treatment in leaves of the PLDα antisense plants induced increased diffusion resistance at half the level as that of wild type leaves (page 4, line 35 to page 6, line 8). Plants were also subjected to progressive drought by withholding irrigation. Under these conditions, the PLDα antisense plants wilted earlier than wild type plants. Measurement of soil water content showed an accelerated decrease with PLDα antisense plants (page 6, lines 9-20). ABA was sprayed on the drought-stressed plants to test its effect on promoting drought resistance. ABA treatment enhanced the drought resistance of the wild-type plants, but had no detectable effect on leaf turgidity and water loss on the PLDα plants (page 6, lines 21-29).

The specification also teaches that PLDα overexpressing transgenic tobacco plants were also prepared, by introducing the coding sequence of a Ricinus communis PLDα, set forth in SEQ ID NO: 2. The "overexpressing" plants showed increased sensitivity to ABA-promoted stomatal closure and decreased water loss. The overexpressing lines showed 5-fold increase in level of PLDα. All overexpressing transgenic plants grew and developed normally to maturity, and showed not significant difference in phospholipid content and composition (page 6, line 30 to page 7, line 12). PLDα overexpressing leaves sprayed with ABA showed faster and tighter stomatal closure than wild type leaves. Leaf diffusion resistance increased by 80% in the transgenic plants, compared to 30% in the wild type plants. To measure water loss, leaves were

detached and measured for decreases in fresh weight. The transgenic leaves showed less water less than wild type (page 7, lines 26-34). PLDα overexpressing plants also showed increased resistance to drought versus plants transformed with an empty vector (page 8, lines 1-4).

However, the specification does not teach altering plant genomes to change PLDα enzyme levels in any other manner. The specification provide any guidance at all as to what other transgenes may be integrated into plant genomes which would lead to an increase or decrease the level of PLDα expression, nor are examples of such genes taught in the prior art. Likewise, the specification does not mention other methods at all for altering genomes to change the level of stomatal closure response. In the absence of further guidance, undue experimentation would be required by one skilled in the art to develop other methods of altering plant genomes to alter the level of PLD enzyme expression or stomatal closure responses. See Genentech, Inc. V. Novo Nordisk, A/S, 42 USPQ2d 1001, 1005 (Fed. Cir. 1997), which teaches that "the specification, not the knowledge of one skilled in the art" must supply the enabling aspects of the invention.

The specification also does not enable the claimed invention when expression levels of PLDs other than PLDα are changed. As discussed in the specification, there are three distinct PLD isoforms. The specification does not teach that isoforms other than PLDα can be used with the claimed invention. Sang et al. (Plant J., October 2001, Vol. 28, pages 135-144) teach that PLDβ and PLDγ are phosphatidylinositol 4,5-bisphosphate-dependent, whereas PLDα is not. Sang et al. also teach the PLDs differ in their substrate preferences and have different patterns of subcellular distribution and tissue expression. PLDβ and PLDγ gene expression increases in wounded leaves. Another PLD isoform, PLDδ, was identified that is activated by oleic acid.

These differences lead Sang et al. to suggest that PLD isoforms are regulated differently and have unique functions, and to conclude that the presence of other PLDs cannot compensate for the loss of PLDα in regulating water loss (pages 135-136, 141). In the absence of further guidance, it would require under experimentation for one skilled in the art to use other PLD isoforms to make and use the claimed invention.

Further, the specification does not teach any nucleotide sequences that have 60% sequence similarity or 50% sequence identity to SEQ ID NO: 1, or 60% or 70% sequence similarity to SEQ ID NO: 2 that also has the functional activity of their encoded proteins. No guidance is provided for identifying the sequences of SEQ ID NO: 2 that may be changed without altering the activity of its protein product. See In re Bell, 26 USPQ2d 1529, 1532 (Fed. Cir. 1993) and In re Deuel, 34 UPSQ2d, 1210 (Fed. Cir. 1995), which teach that the mere existence of a protein does not enable claims drawn to a nucleic acid encoding that protein. See also Amgen Inc. v. Chugai Pharmaceutical Co. Ltd., 18 USPQ2d 1016 at 1021 and 1027, (Fed. Cir. 1991) at page 1021, where it is taught that a gene is not reduced to practice until the inventor can define it by "its physical or chemical properties" (e.g. a DNA sequence), and at page 1027, where it is taught that the disclosure of a few gene sequences did not enable claims broadly drawn to any analog thereof. Further, it is not clear that sequences that differ from SEQ ID NO: 1 may be used to suppress PLD expression. Wang et al. teach that transgenic tobacco plants expressing the antisense sequence of the castor bean PLD failed to decrease PLD activity. Sequence differences between the castor bean and tobacco PLD genes were suspected as the reason for the failure to achieve antisense suppression (page 346).

Furthermore, regarding claims 14, 15, 17, 18, 27, 28, 30, 31, 40, 41, 43, and 44: as discussed above, the specification teaches that antisense expression of PLDα results in transgenic plants that have decreased resistance to drought conditions. It is not clear how one would use the plants that have a decreased ability to survive drought. As discussed above, the antisense PLDα plants did not behave differently in normal growth conditions, which indicates that the claimed method will not produce plants with any added benefit in terms of prevention of water loss under normal growth conditions. In particular, the method of claims 14, 15, 17, and 18, comprising the suppression of expression of PLDs, are not enabled, given that the non-transformed plant cannot grow under unsuitable water and growth conditions to start with. The antisense expressing plants would not increase the ability of the plants to grow in such conditions. See Genentech, Inc. V. Novo Nordisk, A/S, *supra*. Given the breadth of the claims encompassing altering the genome in any manner, to alter the expression of any PLD enzyme, nucleotide sequences having 60% sequence similarity or 50% sequence identity to SEQ ID NO: 1, or 60% or 70% sequence similarity to SEQ ID NO: 2, methods resulting in decrease in water availability to transgenic plants in which PLD expression is suppressed, unpredictability of the art and lack of guidance of the specification as discussed above, undue experimentation would be required by one skilled in the art to make and use the claimed invention.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

4. Claim 54 is rejected under 35 U.S.C. 102(b) as being clearly anticipated by Fan et al. (Plant Cell, 1997, Vol. 9, pages 2183-2196).

The claim is broadly drawn towards any transformed plant having an altered level of expression of any PLD in comparison to wild type plants.

Fan et al. teach transgenic plants expressing the coding sequence of Arabidopsis PLDα in antisense orientation. PLDα expression was suppressed in the transgenic plant in comparison to the non-transformed plant (pages 2184-2185).

5. Claims 54-59 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Wang et al. (Characterization of Phospholipase D-Overexpressed and Suppressed Transgenic Tobacco and Arabidopsis, In Physiology, Biochemistry, and Molecular Biology of Plant Lipids, 1997, Kluwer Academic Publishers, William, J.P., Khan, M.U., and Lem, N.W., Eds., pages 345-347).

The claims are broadly drawn towards any transformed plant having an altered level of expression of any PLD in comparison to wild type plants; or wherein said PLD level being greater in said transformed plant than the wild type plant; or said transformed plant having an insert including a sequence coding for PLD, or said sequence having at least about 60% or 70% sequence similarity to SEQ ID NO: 2, or said insert further including a promoter.

Wang et al. teach tobacco plants transformed with the cDNA coding for the castor bean PLD (SEQ ID NO: 2), operably linked to the CaMV 35S promoter. PLD was expressed at a higher level in the transgenic plants than in untransformed plants (pages 345-346). Transgenic Arabidopsis plants expressing the antisense sequence of the coding sequence for an Arabidopsis

PLD (SEQ ID NO: 1) were also produced. PLD levels were reduced in transgenic plants were reduced in comparison to the untransformed plants (page 346).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1-59 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al. (Characterization of Phospholipase D-Overexpressed and Suppressed Transgenic Tobacco and Arabidopsis, In Physiology, Biochemistry, and Molecular Biology of Plant Lipids, 1997, Kluwer Academic Publishers, William, J.P., Khan, M.U., and Lem, N.W., Eds. Pages 345-347), in combination with Jacob et al. (PNAS 1999, Vol. 96, pages 12192-12197) and Thimann et al. (PNAS, 1979, Vol. 76, pages 2295-2298).

The claims are broadly drawn to a method of creating a transformed plant comprising the steps of recombinantly altering the genome of a plant in any way in an effort to change the baseline level of expression of any PLD enzyme; or a method of growing a transformed plant in a location having unsuitable water and growth conditions prior to transformation, comprising recombinantly altering the genome of a plant in any way in an effort to change the baseline level of expression of any PLD enzyme; or a method of growing a transformed plant having any type of modified stomatal closure response to water availability, comprising recombinantly altering

the genome of a plant in any manner; or a method of altering water consumption by a plant comprising manipulating the level of PLD enzyme expression in any manner; or a transformed plant having an altered level of expression of any PLD, altered in any manner.

Wang et al. is discussed above.

Wang et al. do not teach characteristics of stomatal closure of the transgenic plants.

Jacob et al. teach that PLD activity increases in the presence of ABA, and that phosphatidic acid (PtdOH), one of the products of PLD activity, induces stomatal closure (pages 12193-12194).

Thimann et al. teach that stomatal aperture is the principal controlling agent in leaf senescence, and that when stomata are closed, senescence is induced (pages 2296-2298).

It would have been obvious and within the scope of one of ordinary skill in the art at the time the invention was made to determine the characteristics of stomatal closure in the transgenic plants of Wang et al., given the teachings of Jacob et al. that PLD activity produces PtdOH, which induces stomatal closure, and the teachings of Thimann et al., that senescence is induced when stomata are closed. It was obvious that one would have used any method of testing stomatal closure, including testing transpiration rate, diffusion resistance, treatment with abscisic acid, subjecting the plants to drought conditions, and observing turgidity. The methods of testing that one would have used amount to optimization of process parameters, and would have depended on one's desired end. One would have been motivated to test stomatal closure characteristics in the transgenic plants of Wang et al., to determine the effect of the increase or decrease in PLD activity on leaf senescence. One would also have been motivated to test the plants for growth in water and growth conditions that are unsuitable for the untransformed plants

and to test the stomatal closure responses to water availability, given that Thimann et al. teach that ABA caused closure of stomata, and the teachings of Jacob et al. that ABA increases PLD, which leads to PtdOH production, which induces stomatal closure. Given the teaching of Jacob et al., one would have expected that stomata would have closed in the PLD-overexpressing transgenic plants and opened in the PLD-antisense plants of Wang et al. It would have been obvious to one of ordinary skill in the art to determine and compare the levels of stomatal closure between the transgenic plants and non-transgenic plants, and assess the affect on leaf senescence, and ability of the PLD overexpressing transgenic plants to grow in otherwise unsuitable water and growth conditions. As water is lost through open stomata, it would have been obvious that water availability would have been altered in the transgenic plants of Wang et al.

7. Claims 1-59 are rejected.

Contact Information

Any inquiry concerning this earlier communications from the examiner should be directed to Ashwin Mehta, whose telephone number is 703-306-4540. The examiner can normally be reached on Mondays-Thursdays and alternate Fridays from 8:00 A.M to 5:30 P.M. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amy Nelson, can be reached at 703-306-3218. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-3014 and 703-872-9306 for regular communications and 703-872-9307 for After Final communications. Any inquiry of a general

nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0196.

May 30, 2003

ASHWIN D. MEHTA, PH.D
PATENT EXAMINER